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EXAMINER	
PATTON, SPENCER D	

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3664	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	**Application No.** 10/768,156	**Applicant(s)** TAYLOR, SCOTT P.
	Examiner SPENCER PATTON	**Art Unit** 3664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 November 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-8,12-16,18,20 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-8,12-16,18,20 and 25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendments received 11/24/2010 have been entered. Claims 1, 3-8, 12-16, 18, 20 and 25 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. Claim 1, as amended, requires: "identifying fade areas within the satellite coverage region … by comparing positional information of the mobile platform, in real time, to predetermined mapped and stored signal strength data to identify both a perimeter of the satellite coverage region and at least one area within the perimeter that forms a fade area." The application as originally filed does not disclose this method of identifying fade areas within the satellite coverage region. The specification discloses, at paragraph [0033], comparing positional information of the mobile platform, in real time, to predetermined mapped and stored signal strength data to determine an approximate proximity of the mobile platform to the at least one area within the

perimeter that forms a fade area and to the perimeter of the satellite coverage region; but fails to teach identifying either fade areas or perimeter of the satellite coverage regions using this technique.

Claim Objections

5. Claim 12 is objected to because of the following informalities:

Claim 12: the last three sub-paragraphs should be double indented to clarify that they are describing what the on board server system is adapted to do.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1, 3, 5-8, 12, 14-16 and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar et al (US Patent No. 5,990,928) in view of Chobotov (Orbital Mechanics), Satapathy (US Patent No. 7,072,641) and Cotanis (US Publication No. 2002/0042268).

Sklar et al teaches:

Re claim 1. A method for determining when a moving, airborne mobile platform will enter or exit at least one satellite coverage region, said method comprising:

determining a plurality of boundary coordinates that define a satellite coverage region perimeter (column 11, lines 2-4), the boundary coordinates taking into consideration latitude and longitude to define a three dimensional spatial volume defined by the satellite coverage region (coverage areas 26 and 30, Figure 1; latitude and longitude input into region control unit 44, Figure 2; and block 64, Figure 3. The system determines whether it is within the coverage area based on the latitude and longitude of the aircraft, thus the system must know the coordinates of the coverage areas to execute this comparison.);

monitoring a position of the mobile platform and an altitude of the mobile platform as the mobile platform moves along a travel path (latitude, longitude and altitude, Figure 2; and block 64, Figure 3); and

determining the proximity of the mobile platform to the satellite coverage region perimeter, taking into account a current latitude and longitude of the mobile platform (blocks 64 and 66, Figure 3; column 13, lines 10-15); and

determining the proximity of the mobile platform to the perimeter of the satellite coverage region (blocks 64 and 66, column 13, line 10-15).

Re claim 12. A system for determining when a moving, airborne mobile platform will enter or exit at least one satellite coverage region, said system comprising:

a database adapted to store boundary coordinates that define a satellite coverage region perimeter (region controller, column 4, lines 9-18), the boundary coordinates taking into consideration latitude and longitude to define a three

dimensional spatial volume defined by the satellite coverage region perimeter (coverage areas 26 and 30, Figure 1; latitude and longitude input into region control unit 44, Figure 2; and block 64, Figure 3. The system determines whether it is within the coverage area based on the latitude and longitude of the aircraft, thus the system must know the coordinates of the coverage areas to execute this comparison.);

a navigational system on board the mobile platform adapted to monitor a position and an altitude of the mobile platform as the mobile platform moves along a travel path (latitude, longitude and altitude, Figure 2; and block 64, Figure 3); and

an on board server system (the inherent hardware and software) adapted to:

communicate with the database and the navigational system (column 4, lines 9-18); and

to determine the proximity of the mobile platform to the satellite coverage region perimeter (blocks 64 and 66, Figure 3; column 13, lines 10-15).

periodically determine the latitude, longitude and altitude of the mobile platform as the mobile platform travels within the coverage region (latitude, longitude and altitude, Figure 2; and block 64, Figure 3).

Re claim 18. A method for determining an approximate time of arrival of an airborne mobile platform at one or more satellite coverage area boundaries, said method comprising:

determining a plurality of boundary coordinates that define a satellite coverage region perimeter, the boundary coordinates taking into consideration latitude and

longitude to define a three dimensional spatial volume defined by the satellite coverage region (coverage areas 26 and 30, Figure 1; latitude and longitude input into region control unit 44, Figure 2; and block 64, Figure 3. The system determines whether it is within the coverage area based on the latitude and longitude of the aircraft, thus the system must know the coordinates of the coverage areas to execute this comparison.);

storing the boundary coordinates in a database accessible by a server system on board the mobile platform (coverage areas are stored in region controller, column 4, lines 9-18);

monitoring a position and an altitude of the mobile platform as the mobile platform moves along a travel path, the position including latitude, longitude and altitude information concerning a real time position of the mobile platform (latitude, longitude and altitude, Figure 2; and block 64, Figure 3);

determining the proximity of the mobile platform to the satellite coverage region perimeter (blocks 64 and 66, Figure 3; column 13, lines 10-15); and

determining a time-to-boundary measurement of the mobile platform to indicate an approximate time until the mobile platform will arrive at the satellite coverage area boundary (column 13, lines 10-15);

periodically comparing the location of the mobile platform to the satellite coverage region perimeter boundary coordinates (blocks 64 and 66, column 13, line 10-15); and

determining the proximity of the mobile platform to the satellite coverage region perimeter boundary coordinates (blocks 64 and 66, column 13, line 10-15).

Sklar et al fails to specifically teach: **(re claims 1, 12 and 18)** the boundary coordinates taking *altitude* into consideration to define a three dimensional spatial volume defined by the satellite coverage region; and **(re claim 1)** taking *altitude* of the mobile platform into account to determine the proximity of the mobile platform to the satellite coverage region perimeter.

Chobotov teaches, at Figure 15.2 and equation 15.3, calculating the radius of the coverage circle at sea level for a satellite to determine the boundaries of a satellite's coverage region at sea level. One of ordinary skill in the art would recognize that the coverage circle can be calculated at any altitude by modifying Earth's radius (r_e) in equation 15.3 to reflect the altitude above the center of the Earth.

In view of Chobotov's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the method as taught by Sklar et al, **(re claims 1, 12 and 18)** the boundary coordinates taking *altitude* into consideration to define a three dimensional spatial volume defined by the satellite coverage region; and **(re claim 1)** taking *altitude* of the mobile platform into account to determine the proximity of the mobile platform to the satellite coverage region perimeter; since Chobotov teaches the distance of a point of interest from the center of the Earth is used to calculate the coverage area of a satellite serving that point of interest.

Sklar et al as modified by Chobotov fails to specifically teach: **(re claim 1)** identifying fade areas within the satellite coverage region by utilizing signal strength

data of a signal from a satellite associated with the satellite coverage region, and by comparing positional information of the mobile platform, in real time, to predetermined mapped and stored signal strength data to identify both a perimeter of the satellite coverage region and at least one area within the perimeter that forms a fade area; and determining the proximity of the mobile platform to the fade area; **(re claim 12)** map a plurality of signal strength data throughout the satellite coverage region; identify a fade area within the satellite coverage region where the signal strength is significantly weaker than an average signal strength throughout the satellite coverage region, and store location information concerning the fade area; and periodically compare the [location] of the mobile platform with the stored location information concerning the fade area to determine the proximity of the mobile platform to the fade area; **(re claim 18)** mapping a plurality of signal strength data for the satellite coverage region; identifying signal fade areas within the satellite coverage region utilizing the signal strength data and storing location information for the signal fade areas in the database; and determining the proximity of the mobile platform to the fade areas.

Satapathy teaches, at Figure 6, column 1, lines 55-58, column 8, lines 11-55 and column 9, line 39 through column 10, line 15, determining call drop areas based on dropped connections resulting from low signal strength and alerting a mobile station when it is about to enter a “call-drop area” based on the mobile station’s distance from the call-drop area. Additionally Satapathy teaches at column 1, lines 35-44, that a "call" is not limited to a traditional voice call, but may encompass more advanced data sessions.

Cotanis teaches, at the abstract and paragraph [0039], that methods for processing signal strength information and determining signal coverage for wireless devices apply to cellular site transmitters just as well as satellite transmitters.

In view of Satapathy's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the system and method as taught by Sklar et al as modified by Chobotov, **(re claim 1)** identifying fade areas within the satellite coverage region by utilizing signal strength data of a signal from a satellite associated with the satellite coverage region, and by comparing positional information of the mobile platform, in real time, to predetermined mapped and stored signal strength data to identify both a perimeter of the satellite coverage region and at least one area within the perimeter that forms a fade area; and determining the proximity of the mobile platform to the fade area; **(re claim 12)** map a plurality of signal strength data throughout the satellite coverage region; identify a fade area within the satellite coverage region where the signal strength is significantly weaker than an average signal strength throughout the satellite coverage region, and store location information concerning the fade area; and periodically compare the [location] of the mobile platform with the stored location information concerning the fade area to determine the proximity of the mobile platform to the fade area; **(re claim 18)** mapping a plurality of signal strength data for the satellite coverage region; identifying signal fade areas within the satellite coverage region utilizing the signal strength data and storing location information for the signal fade areas in the database; and determining the proximity of the mobile platform to the fade areas; since Satapathy teaches determining call drop

areas so that a mobile station may be alerted when it is about to lose a signal and Cotanis teaches that methods for processing signal strength information and determining signal coverage for wireless devices apply to cellular site transmitters just as well as satellite transmitters.

Sklar et al further teaches:

Re claim 3. Wherein the method further comprises storing the boundary coordinates in a database accessible by a server system on board the mobile platform (coverage areas are stored in region controller, column 4, lines 9-18).

Re claim 5. Wherein said monitoring a position of the mobile platform comprises periodically determining a latitude, a longitude and an altitude of the mobile platform as the mobile platform moves along the travel path (latitude, longitude and altitude, Figure 2; and block 64, Figure 3).

Re claims 6 and 14. Wherein said determining the proximity of the mobile platform to the satellite coverage region perimeter comprises periodically comparing the position of the mobile platform to the boundary coordinates (block 66, Figure 3).

Re claims 7 and 15. Wherein the method further comprises determining a time-to-perimeter measurement of the mobile platform to indicate an approximate time that the mobile platform will remain within the satellite coverage region (column 13, lines 10-15).

Re claims 8 and 16. Wherein the method further comprises determining a time-to-perimeter measurement of the mobile platform to indicate an approximate time before the mobile platform will enter the satellite coverage region (column 13, lines 10-13)

8. **Claims 4, 13 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar et al (US Patent No. 5,990,928) as modified by Chobotov (Orbital Mechanics), Satapathy (US Patent No. 7,072,641) and Cotanis (US Publication No. 2002/0042268) as applied to claims 1, 12 and 18 above, and further in view of Ashton et al (US Patent No. 6,434,682).

The teachings of Sklar et al as modified by Chobotov have been discussed above. Sklar et al as modified by Chobotov fails to specifically teach: **(re claims 4 and 20)** wherein said storing the boundary coordinates comprises at least one of: storing the coordinates in a look up table; and storing the coordinates in a link list; **(re claim 13)** wherein the database includes at least one of a look up table and a link list.

Ashton et al teaches, at column 5, lines 14-17, that look up tables and linked lists are suitable and well known data structures for storing data.

In view of Ashton et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the method and system as taught by Sklar et al as modified by Chobotov, **(re claims 4 and 20)** wherein said storing the boundary coordinates comprises at least one of: storing the coordinates in a look up table; and storing the coordinates in a link list; **(re claim 13)** wherein the

database includes at least one of a look up table and a link list; since Ashton et al teaches that these data structures are suitable and well known for storing data.

9. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar et al (US Patent No. 5,990,928) as modified by Chobotov (Orbital Mechanics), Satapathy (US Patent No. 7,072,641) and Cotanis (US Publication No. 2002/0042268) as applied to claims 1, 12 and 18 above, and further in view of Miller et al (US Patent No. 5,956,644).

The teachings of Sklar et al as modified by Chobotov, Satapathy and Cotanis have been discussed above. Sklar et al further teaches:

Re claim 25. Wherein the method further comprises:

in real time, determining the proximity of the mobile platform to the edge effect area (blocks 64 and 66, column 13, line 10-15).

Sklar et al as modified by Chobotov, Satapathy and Cotanis fails to specifically teach: **(re claim 25)** identifying an edge effect area within the satellite coverage region utilizing the signal strength data.

Miller et al teaches, at column 12, line 61 through column 13, line 2, that knowledge of the roll off patterns of satellite beams can be used to determine when an airborne system will hand-off between two satellites (column 3, lines 23-44).

In view of Miller et al's teachings, it would have been obvious to one of ordinary skill in the art at the time of the invention to include, with the method as taught by Sklar

et al as modified by Chobotov, Satapathy and Cotanis, **(re claim 25)** identifying an edge effect area within the satellite coverage region utilizing the signal strength data; since Miller et al teaches that knowledge of the roll off patterns at the edge of satellite beams is useful for determining the time allowed for hand-offs between satellites and Sklar et al teaches determining the proximity to the edge of a satellite coverage region as discussed above.

Response to Arguments

10. Applicant's arguments, see page 9, filed 11/24/2010, with respect to the objections to the claims have been fully considered and are persuasive. The objections of the claims have been withdrawn.

11. Applicant's arguments filed 11/24/2010 have been fully considered but they are not persuasive.

12. Applicant argues on pages 11-12 that none of the cited references wholly teach the claimed invention. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

13. Applicant argues on page 12, that the combination of references would not have been obvious because Sklar does not mention the possibility of combining the references. A primary reference does not need to provide motivation to combine

references; the motivation may come from a secondary reference or from the knowledge generally available to one of ordinary skill in the art. In this case the secondary reference, Satapathy, teaches determining call drop areas so that a mobile station may be alerted when it is about to lose a signal. Alerting a user when they are about to lose a signal is known in the art to be beneficial to the user, and is in fact the purpose of Sklar. Adding this functionality of Satapathy makes Sklar a more complete system which can account for losing signals at the edge of coverage regions, or at other areas of low signal strength.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SPENCER PATTON whose telephone number is (571)270-5771. The examiner can normally be reached on Monday-Thursday 7:30-5:00; Alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Khoi Tran can be reached on (571)272-6919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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